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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/065,908	11/28/2002	Heng-Kuan Lee	FTCP0014USA	5309
27765	7590	07/13/2005	EXAMINER	
NORTH AMERICA INTERNATIONAL PATENT OFFICE (NAIPC) P.O. BOX 506 MERRIFIELD, VA 22116			CATHEY II, PATRICK H	
			ART UNIT	PAPER NUMBER
			2613	
DATE MAILED: 07/13/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/065,908

Applicant(s)

LEE, HENG-KUAN

Examiner

Patrick H. Cathey II

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 9-11 and 16-19 is/are rejected.
- 7) ☒ Claim(s) 5-8, 12-15 and 20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on January 26<sup>th</sup>, 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim's 16 and 17 are rejected under 35 U.S.C. 101 because the claim format is unacceptable and subject to a 101 rejection:

Claim 16 recites: "A computer readable media used for motion estimation in video compression, the computer readable media comprising:"

Such a claim is non-statutory because the terminology "computer readable media" alone has no set definition.

Claim language should be corrected to read:

"A computer readable media storing therein computer-executable program codes for motion estimation in video compression, the computer readable media comprising:"

### ***Response to Arguments***

Applicant's arguments filed January 26<sup>th</sup>, 2005 have been fully considered but they are not persuasive. The single resolution search area does not specifically state that there is a single optical resolution search area which would overcome Linzer. Linzer et al. teach changing the spatial resolution of the search area that only adjusts the size in which the search area contains (Column 7, Lines 18-47). This rejection still stands as overcoming the addition of the single resolution search area.

***Allowable Subject Matter***

Claim's 3-8, 12-15 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 10-11, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Linzer (US 6,229,850).

As for claims 1, 10, and 16, Linzer teaches of selecting a plurality of search locations within a single resolution search window (Note: the reference takes the image (frame) and makes reduced resolution images (i.e. search locations) and performs searches in each one of said reduced resolution images, Column 7, Lines 7-31); generating a match-value (i.e. search results) for each search location indication how closely each search location matches a reference block (Note: Column 6, Lines 27-32); generating a plurality of level-values based on first dispositional relationships of the search locations and the relative magnitudes of the match-values (Note: the level-values are noted in the reference as "reduced search locations" which are dependent on the previous process of the first video compressor, Column 7, Lines 18-47); generating

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a preliminary motion vector based on the level-values (Column 6, Lines 52-56); generating a plurality of candidate results based on second dispositional relationships of the search locations and the relative magnitudes of the match-values (Note: the third search uses the results of the first and second searches which used search results and reduced search locations, Column 6, Lines 44-60). Linzer does not explicitly teach of generating a final motion vector by altering the preliminary motion vector according to the candidate results as indicated by a predetermined set of formulas, however, Linzer teaches that the final motion vectors made in the third search results for the first video compressor which contains common hardware between the first and second video compressor (i.e. dct) which contain a predetermined set of equations (Column 6, Lines 50-65). It would have been obvious to one of ordinary skill in the art at the time of the invention to use a set of formulas instead of equations because of the instance in which it was used. The equations are used in situations where the same calculation is done every time (i.e. the same transform is performed no matter what the variables are), however, when the variables need to change depending on different levels or other circumstances then formulas must be used, and this would have been known to one of ordinary skill in the art.

As for claims 2 and 11, Linzer does not explicitly teach of the search locations are selected according to a predetermined table comprising a first column, a second column, and a plurality of rows, each row in the table specifying a unique search location, however, Linzer does teach of storing the information in memory or in storage devices (Column 6, Lines 1-21). It would have been obvious to one of ordinary skill in

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the art at the time of the invention to store the information in a table instead of memory in order to make the retrieval of said information quicker and more precise.

Claim's 9 and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Linzer (US 6,229,850) in view of Kim (Kim, J.N. et al., A Fast Motion Estimation for Software Based Real-Time Video Coding, May 1999, IEEE Transactions on Consumer Electronics, Vol.45 No 2, Pages 417-425.).

As for claim 9, Linzer does not explicitly teach of generating the match-values comprises calculating the sum of the absolute differences in brightness between each pixel in the reference block and a corresponding pixel in the search location to generate the match-value for the search location, however, Kim does (Column 2, Lines 3-15). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the sum of absolute differences because of its wide use in the art and also its effectiveness at being computationally fast. (Official Notice)

As for claim's 17-19, Linzer does not explicitly teach where at least one of the level-values equals the sum of the match-values of a plurality of predetermined search locations, however, Kim does (pages 420-422). Since in motion estimation, the match value is generally given a value in which the reference block must attain, it would have been obvious to one of ordinary skill to have the sum of the match values equal the level-value in order to have a correct match in which corresponds to the limitations of the motion estimation device.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick H. Cathey II whose telephone number is (571)272-7326. The examiner can normally be reached on M-F 7:30 to 5:00 (Every other Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on (571)272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patrick H. Cathey II  
Examiner  
Art Unit 2613

PHC

MEHRDAD DASTOURI  
SUPERVISORY PATENT EXAMINER  
TC 2600  
*Mehrdad Dastouri*